

# Physics Tempo

The Newsletter of The St. Louis Area Physics Teachers  
an affiliate of the American Association of Physics Teachers  
December 1991

Vol. 2 No. 3

## Notes & News from the November Meeting - STOM by Debbie Rice Roosevelt High School

In lieu of our usual monthly meeting, the November meeting was the Fall Convention of the Science Teachers of Missouri with the theme "Show Me Science." This convention was held in two parts. The first session was held the evening of Friday, November 15 at the recently reopened St. Louis Science Center. This session included a presentation by NASA astronaut Linda Godwin. Another highlight was a viewing of the Omnimax movie *To the Limit*.

The convention continued on Saturday at Hazelwood Central High School in Florissant, Missouri, with our own Linda Kralina hosting and organizing the activities. The convention was well-attended by members of the St. Louis Area Physics Teachers. Our organization had an information booth set up in the main exhibition area with voluntary staffing by David Bross, Rich Langer, Debbie McKenzie, Jerry Taylor and Ray West. Paul Discher prepared signs, a drop box and membership forms for the booth. Thanks to each of you for your time and effort. About fifty teachers stopped by the booth and took the time to fill out information forms at our booth.

Several major exhibits of "Show Me Science" were managed by members of the St. Louis Area Physics Teachers. These included Gene Fuchs/Show Me Organizations, Jim Harpel/Show Me Interactive Videos, Mary Jo Kohunsky/Show Me Videotapes, and Debbie and Rex Rice/Show Me Interfacing Labs.

**Congratulations** to Linda Kralina for organizing a first-rate convention and thanks to all of our members who showed up to support STOM.

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## Notes from the December Meeting by Margaret Skouby Maplewood-Richmond Heights High School

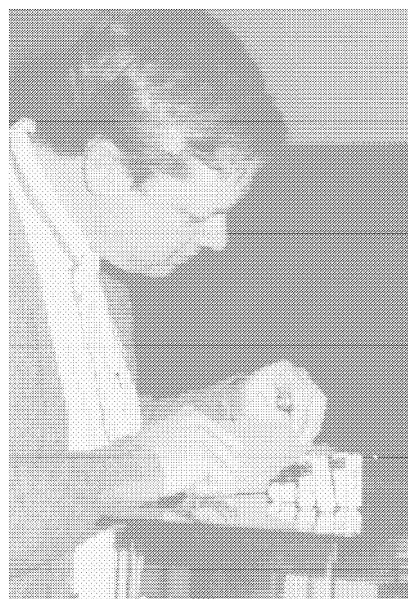
The December meeting of the St. Louis Area Physics Teachers convened at 8:30am Saturday December 18, 1991, at the Maplewood-Richmond Heights High School, Margaret Skouby was our host. Debbie Rice opened the



St. Louis Science Center, View from North walk.

general business of the meeting with a tentative summary of future meeting activities. Other business included Debbie's report on the progress in obtaining a Federal Tax Exemption number. Paul Discher prepared and presented a draft version of Bylaws for the St. Louis Area Physics Teachers. Bylaws are a necessary requirement for tax exempt status. Since the matter is quite complex, further discussion and action on the bylaws will be conducted at a later date.

**Rex Rice** presented a progress report from the Six Flags-Physics Day committee, and their endeavor to design a new student activity packet for the park. The membership



**Lou Pape, Optical Society of Greater St. Louis showing the materials in the Optics Discovery Kits.**

agreed that there would be no age and academic level restrictions on participation by students. The decision on whether or not to participate was left up to the individual teacher. In relation to this discussion, it was proposed that more conceptual activities be added to the packet. Rex said that the committee had already considered this and would try to include more conceptual questions.

Just before the business meeting, Paul Discher showed his smoke tank demonstration apparatus (described in the October 1991 issue of *Physics Tempo*). The tank is a wonderful way to demonstrate the three-dimensional focus of optics with just an aquarium and a slide projector. Contact Paul Discher if you would like a reprint.

**Lou Pape** was our guest speaker from the Optical Society of Greater St. Louis. Mr. Pape showed the group the

contents of the Optical Discovery Kits available on loan from the Society, and passed around copies of the student and teacher packets that is included with the Kits. The Optical kits contain the materials needed for the activities described. Nothing is fancy, but everything is functional for simple qualitative experiments. He also provided two additional handouts. The first was a listing of video tapes available in a Speakers library series. Tapes are made from the meeting presentations of the Optical Society of Greater St. Louis. Some of these would be useful for high school physics students. The second handout was a listing of Science Fair project ideas. Lou Pape presented several of the ideas and passed around pictures taken at last year's Science Fair.

**Teresa Corley**, Nerinx Hall High School, gave her presentation on the light boxes constructed for the Woodrow Wilson II, Physical Science Workshops. The unique light box is constructed with mat-board and binder clamps. The light assembly consisted of a clear bulb, socket, pegboard and screws. The design was very simple, inexpensive to build, and with modifications could accommodate 4 sets of students. Plans were not made available, the original author/designer of the project has sent his design through revision, a newer easier to construct light box plans are to be forthcoming.



**Teresa Corley, Nerinx Hall High School showing the light boxes made at The Woodrow Wilson II Summer Institute**

**Parking** on the lot outside the Science Center is \$3.00. However, there is **limited free parking** in Forest Park on the Science Center Planetarium lot and on the street surrounding the Planetarium. You may take the covered walk to get to the meeting. There is also limited street parking on Oakland.

**Because** of the limited amount of meeting time in January, we will reserve our sharing session until February, when we meet at Vianney High School. Please call our host, Gene Allard, 314-842-4329, if you have something to share in February.

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### **February 1992 Meeting**

**Date: Saturday,**

**February 8, 1992**

**Time: 8:30am - 12:00**

**Place:**

**Vianney High School**

**Host: Gene Allard**

The regular scheduled meeting of Teachers will be held at Vianney High School, 8:30am Saturday February 8, 1991. A short business meeting will precede the "make and take session." We will be constructing a light wave transmitter and receiver device for the demonstration light wave communications. The devices will consist of a Light Emitting Diode transmitter and solar cell receiver/amplifier with speaker to pick up the voice signal.

**If you would** like to be part of this work session it will be necessary to mail \$10.00 to Gene Allard to reserve your materials in advance. **Please do so before February 1, 1992** by sending your \$10.00 (**please make checks payable to Gene Allard**) to :

Vianney High School  
1311 S. Kirkwood Road  
St. Louis, Mo. 63122  
Attn: **Gene Allard**

**We already** have some of the components donated and if we get more donations we can reduce the cost even further by providing a refund at the date of the program.

**Vianney High School** campus is located on the northwest corner of the intersection of I-44 and Lindbergh ( which changes to Kirkwood road north of I-44) See the enclosed map.

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### **January 1992 Meeting**

**Date: Saturday, January 18, 1992**

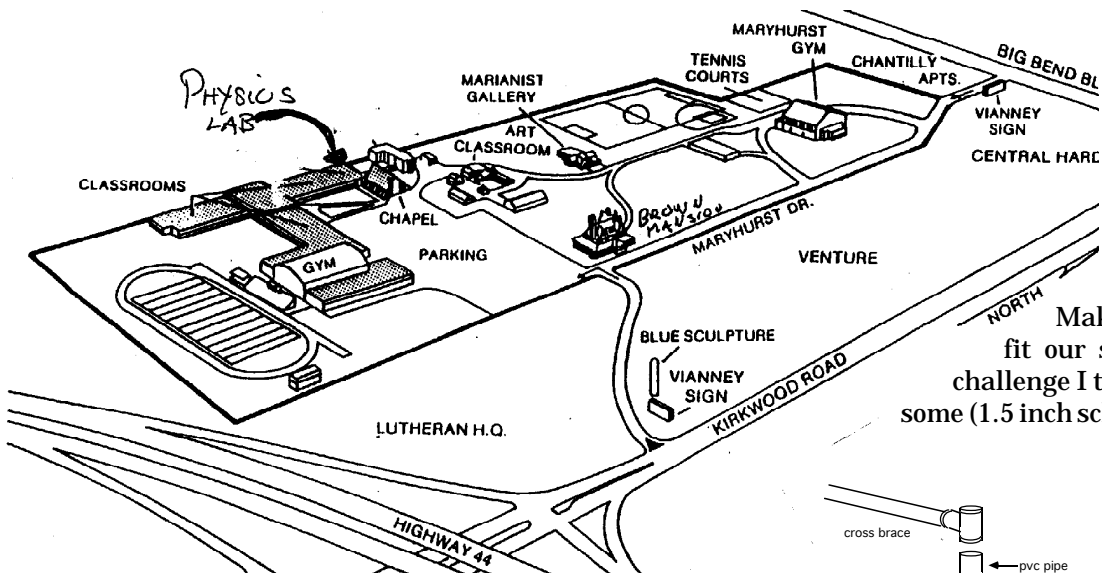
**Time: 1:00 pm - 2:00 pm**

**Place: St. Louis Science Center**

**Host: St. Louis Science Center Staff**

An abbreviated meeting of the St. Louis Area Physics Teachers will be held at The St. Louis Science Center, Saturday January 18, 1992 1:00 pm, in the lower level meeting rooms. There will be no business meeting at this assembly, rather, we will be touring the center, and have a special assembly with the Science Center staff.

After the meeting is adjourned, we will visit the exhibits and/or go to the Omnimax.



**Vianney Campus Map**

If you have further questions regarding the February meeting please contact:

Gene Allard  
 10962 Ambush  
 St. Louis, Missouri 63123  
 892 -4329 (home)

### On The Road With Woodrow Wilson

by Teresa Reeve Corley

Summer 1991 was the first summer for the Woodrow Wilson Physical Science II Team. We made stops in Pittsburgh, Cleveland, Indianapolis, Purchase, N. Y., and Grand Rapids, MI. The Physical Science Team concentrates on teachers of grades seven through nine, with an emphasis on Physics topics. The participants, however, ranged from fourth through twelfth grade teachers in various teaching fields including art and special education.

We gained a tremendous amount of information about middle school/junior high science. Many teachers expressed lack of support, both financial and professional at this level. Lack of computers in the classroom proved to be very frustrating. We also found teachers to be unprepared to teach Physics, especially at the junior high level. The need for information, activities and resources was startling at times.

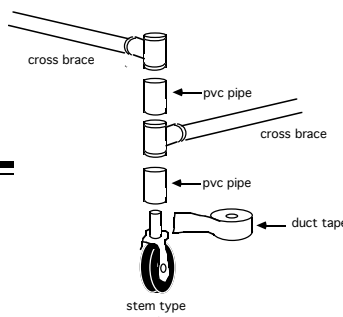
We encouraged all the physical science teachers who participated in the Week-Long Institutes to get to know the Physics teachers in their area to foster a better support network for middle school science. Our hope is that such contact will help create a strong physical science program for all students early in their education. Our challenge to the St. Louis teachers—' get to know your districts physical science teachers and bring them to the next physics teachers meeting.

## Building Custom Laboratory Carts

by Paul Discher

The commercially made carts you need for your laboratory are quite expensive and even with a large selection you don't always find just the right size.

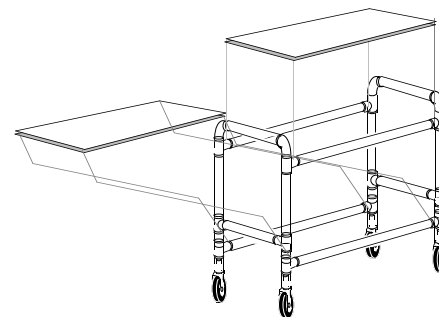
Making custom lab carts that would fit our spaces and our budget was the challenge I tackled when I designed and built some (1.5 inch schedule 40) PVC Pipe carts. These carts both inexpensive and can be built with simple hand tools (no power tools needed).



The idea of using PVC pipe for this application came to me when I found some ads about building your own PVC lawn furniture in order to make big bucks. You certainly can vary the design to

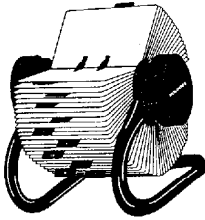
improve strength, minimize material etc. (But don't expect to make those big bucks). I designed mine so that it would fit an undersized elevator, some smaller classroom, and tight storage areas. Stem mounted swivel casters are abundant in surplus catalogs and are priced as low as \$2.95 each.

In order to make stem mount casters fit into the PVC pipe, I wrapped the stem with duct tape until the outside dimensions were equal to the inside dimensions of the pipe. Then I used PVC pipe dope to cement the casters into short sections of pipe, and in turn cemented them into "T" sections. The location of "T" sections at the base were intended to provide strength, and a fastening support for a lower shelf.



The top short members provide a useful handle as well as cross support. The plywood surfaces add strength to the cart, and the bottom shelf helps lower the center of gravity. The surfaces are mounted to the pipe with countersunk screws and bolts. I really do not know what the effective load limit of this design yields, because I have never tested it, however, I only use the carts for light weight demos.

# The Physics Teachers Rolodex



POLAROID HOTLINE  
800-225-1384

**If you ever had a question or problem with Polaroid Cameras or Film this is the manufacturers hotline. Very fiendly and helpful people.**

IASCO INDUSTRIAL ARTS SUP.  
5724 WEST 36TH STREET  
MINNEAPOLIS, MN 55416-2594  
612-920-7393

**MATERIALS, PLASTIC, WOOD, FIBERGLAS, METAL  
TECH BOOKS ON METAL & PLASTIC, PROJECT  
KITS.**

*As you already know the rolodex is where you keep your important names and addresses handy. This column of the newsletter is devoted to the listing of sources for useful and innovative science teaching equipment and general classroom services.*

Easy Tech Inc.  
2917 Bayview Drive  
Fremont, California 94538

1-800-582-4044

**Electronics items including, tools, test equipment, electronic enclosures, data books, soldering equipment, designer boards, some ham radio equipment.**

Optical Society of America  
Optical Classroom Kits  
2010 Massachusetts Ave. N.W.  
Washington, D.C. 20036

**These are the kits that Lou Pape showed us on  
December 18, 1991**

## Mission Statement

*Physics Tempo* is the free monthly newsletter of and by the St. Louis Area Physics Teachers, an affiliate of the American Association of Physics Teachers (AAPT), and is intended as an organizational support group for the betterment of Physics and Physical Science teachers throughout St. Louis and Illinois.

*Physics Tempo* is dedicated to report achievements and announce the activities of the St. Louis Area Physics Teachers. In addition, *Physics Tempo* is intended to help disseminate useful and innovative information for teaching Physics and Physical Science. *Physics Tempo* is your newsletter. Editorial contributions are encouraged and welcomed. No idea is too small. Send articles, ideas, and subscription requests/address changes to: Physics Tempo: Editor/Paul Discher, Washington University-Electrical Engineering, Campus Box 1127, St. Louis, Missouri 63130-4899. FAX articles or Ideas to Washington University- Electrical Engineering Fax Line: 314-935-4842. Please mark your fax mail to the attention of the Tempo Newsletter Editor, Paul Discher.

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*Editorial and Subscriptions information:*

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St. Louis, Missouri 63130-4899**



# Merry Christmas